

REMARKS

The above amendments to the above-captioned application along with the following remarks are being submitted as a full and complete response to the Official Action dated November 15, 2006. In view of the above amendments and the following remarks, the Examiner is respectfully requested to give due consideration to this application, to indicate the allowability of the claims, and to pass this case to issue.

Status of the Claims

Claims 1-9 are under consideration in this application. Claims 1, 4-7 and 9 are being amended, as set forth in the above marked-up presentation of the claim amendments, in order to more particularly define and distinctly claim Applicant's invention.

The claims are being amended to correct formal errors and/or to better recite or describe the features of the present invention as claimed. All the amendments to the claims are supported by the specification. Applicant hereby submits that no new matter is being introduced into the application through the submission of this response.

Allowable Subject Matter

Claims 8-9 would be allowed if rewritten into independent form to include the limitations of the base claim and any intervening claims. Applicant respectfully thanks the Examiner for her consideration in this matter.

Prior Art Rejections

Claims 1-3 and 5-6 were rejected under 35 U.S.C. §102(b) as being anticipated by US Pat. No. 5,553,051 to Sugiyama et al. (hereinafter "Sugiyama"), and claim 7 was rejected under 35 U.S.C. §102(e) as being anticipated by US Pub. No. 2003/0218955 of Isshiki et al. (hereinafter "Isshiki"). Claim 2 was rejected under 35 U.S.C. §103 (a) as being unpatentable over Sugiyama in view of Isshiki, and claim 4 was rejected over Sugiyama in view of WO 03/034412 of Van Kesteren (hereinafter "Van Kesteren"). These rejections have been carefully considered, but are most respectfully traversed.

The information recording and playback method for a recording medium (for example, the embodiment depicted in Figs. 2-6 & 11-12) including a substrate forming a first groove 1201 having a depth and a second groove 1202 adjacent to said first groove 1201 and different depth $3\lambda/4$ from the depth $\lambda/4$ of said first groove 1201; and a recording layer formed on said substrate to record information marks. The method of the present invention, as now recited in claim 1, comprises the steps of: irradiating a light to said recording medium having following relations, in optical characteristics of said marks in relation to said first and second grooves, where a relative amplitude of reflectivity of said recorded mark (a reference reflectivity is a reflectivity of non-recorded part) is r , and optical phase differences of said marks formed on said first and second grooves 1201, 1202 are ϕ_1 and ϕ_2 , respectively, an expression of $2N\pi = \phi_1 + \phi_2$ (where N is an integer) satisfies, and said r further satisfies $1 - 2 \cdot r \cdot \cos(\phi_1) + r^2 \cdot \cos(2 \cdot \phi_1) = 0$ or $1 + 2 \cdot r \cdot \cos(\phi_1) + r^2 \cdot \cos(2 \cdot \phi_1) = 0$; and recording or reading out the information on said marks formed on and within said first and second grooves 1201, 1202.

The invention as recited in claim 6, is directed to an information recording medium implementing the method of claim 1.

In contrast, Sugiyama's data recording marks 36, 37, 38 are formed on convex portions 26, 27, 28 rather than on the groove portions 24, 25 (Fig. 5A). As such, Sugiyama fails to "read out the information on said marks formed on and within said first and second grooves 1201, 1202" as recited in claims 1 and 6. In addition, Sugiyama does not satisfy orthogonality "both between adjacent marks in a radial direction and between adjacent marks in a track direction" as recited in claim 5.

The information playback method for reading out information by irradiating an optical spot on an information recording medium having a plurality of tracks of the present invention (for example, the embodiment depicted in Fig. 12; pp. 23-25), as now recited in claim 7, comprises the steps of: irradiating said optical spot simultaneously on a first track and a second track adjacent to said first track, among said plurality of tracks; and maintaining an orthogonal relation with a depth of a recorded mark recorded on said first track and a depth of a recorded mark recorded on said second track, when simultaneously converting both the recorded marks to electric signals thereby direct adding the signals to read out information therefrom (for example, with the formula recited in claim 6; "*When the component can be expressed by the simple sum, it means that linearity is established and the component is referred to as a "linear component".*" p.

5, lines 9-11; “*When the orthogonal condition is satisfied, the signal components become linear irrespective of the sizes of the two-dimensional shapes of the marks*” p. 11, lines 24-26; “*even when the shapes of the two marks are changed independently and freely to change the respective signal intensities, the signal intensities of the two marks do not interfere with each other and the detection signals from the two marks can be expressed by the simple addition.*” P. 12, lines 15-21; “*The invention can make the relation between the number of pits and the readout signal level linear*” p. 13, lines 18-19). The depth of the recorded mark recorded on said first track is different from the depth of the recorded mark recorded on said second track (for example, “*depths of the concavo-convexity of the information marks 1203 and 1204 of the tracks 1201 and 1202 are $\lambda/4$ and $3\lambda/4$ (where λ is the wavelength of the light source)*” p. 23. last line to p. 24, line 3).

In contrast, Isshiki’s recorded marks are formed of the *same* (rather than “*different*”) depth.

In addition, Isshiki moves the marks at the plane direction to avoid adverse effects between the adjacent marks (Abstract), rather than “*maintaining an orthogonal relation of the depths of the adjacent marks and the depths being different*” “thereby direct adding the signals to read out information therefrom” as the present invention.

Sugiyama, Isshiki, Van Kesteren, and their combinations all fail to teach or suggest each and every feature of the present invention as now recited in independent claims 1 and 6-7 from which all other claims depend. As such, the present invention as now claimed is distinguishable and thereby allowable over the prior art cited in the Office Action. The withdrawal of the outstanding prior art rejections is in order, and is respectfully solicited.

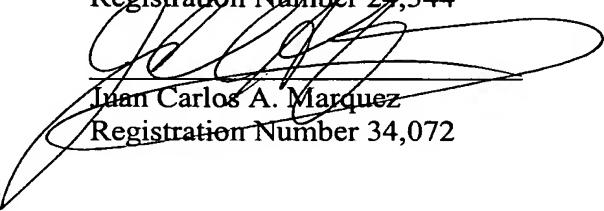
Conclusion

In view of all the above, clear and distinct differences as discussed exist between the present invention as now claimed and the prior art reference upon which the rejections in the Office Action rely, Applicant respectfully contends that the prior art references cannot anticipate the present invention or render the present invention obvious. Rather, the present invention as a whole is distinguishable, and thereby allowable over the prior art.

Favorable reconsideration of this application is respectfully solicited. Should there be any outstanding issues requiring discussion that would further the prosecution and allowance of the above-captioned application, the Examiner is invited to contact the Applicant's undersigned representative at the address and telephone number indicated below.

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